

Title: Medical scenarios relevant to spaceflight

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Introduction: The Medical Operational Support Team (MOST) was tasked by the JSC Space Medicine and Life Sciences Directorate (SLSD) to incorporate medical simulation into 1) medical training for astronaut-crew medical officers (CMO) and medical flight control teams and 2) evaluations of procedures and resources required for medical care aboard the International Space Station (ISS). Development of evidence-based medical scenarios that mimic the physiology observed during spaceflight will be needed for the MOST to complete these two tasks.

Methods: The MOST used a human patient simulator, the ISS-like resources in the Medical Simulation Laboratory (MSL), and evidence from space operations, military operations and medical literature to develop space relevant medical scenarios. These scenarios include conditions concerning airway management, Advanced Cardiac Life Support (ACLS) and mitigating anaphylactic symptoms.

Results: The MOST has used these space relevant medical scenarios to develop a preliminary space medical training regimen for NASA flight surgeons, Biomedical Flight Controllers (Biomedical Engineers; BME) and CMO-analogs. This regimen is conducted by the MOST in the MSL.

Conclusion: The MOST has the capability to develop evidence-based space-relevant medical scenarios that can help SLSD 1) demonstrate the proficiency of medical flight control teams to mitigate space-relevant medical events and 2) validate next-generation medical equipment and procedures for space medicine applications.